



FEMA

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Mitigation News

Slump Forces Owners out of Home

OLIVER, WI - The Schlais family enjoyed life on the banks of the St. Louis River—at least until August 2002 when a crack appeared in the middle of their garage floor. They moved the garage before half of its foundation dropped 12 feet towards the river a month later. By mid-September, the 18 foot slump was approximately one foot from the rear entrance of the Schlais home. The Schlais along with several other nearby homeowners watched their yards, decks, and stairways slide towards the river.

According to Jack Zaengle, Geology Professor at the University of Wisconsin-Superior, this type of earth mass-movement, called a “slump,” is common in the area. However, what made this event unusual was the sheer size of the slump, approximately 100 yards wide extending 100 to 150 feet down slope to the river, and the rate at which it was slipping, an average of 1.5 inches per day. Early on the Schlais reported slip rates in excess of 4.5 inches per day.

The ground failure was due in part to an underlay of red clay, which contains a significant amount of the mineral, smectite. Smectite absorbs water and expands to many times its original volume, shrinking back again when it dries. This contributes to the instability of the red clay, especially when saturated. During the spring and summer of 2002, the area received a lot of rain which added weight to the red clay. The water also acted as a lubricant which facilitated down-slope movement.

Another factor causing the slump was the ground vibration caused by trains crossing the nearby Oliver Bridge.

On top of all that, the Schlais’ home was close to a propane tank and other infrastructure that was deteriorating. Water seepage into the basement also intensified making this a high-risk situation.

Through Wisconsin Emergency Management (WEM,) the Village of Oliver applied for and received funds from the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program to acquire and demolish the three homes that were in imminent danger from ground failure. FEMA provided 75% of the costs or \$238,847 with WEM and the Village each providing 12.5% or \$39,808 towards the cost of the project.

“This was a serious situation for not only the Schlais, but the other two properties,” stated Roxanne Gray, State Hazard Mitigation Officer at WEM. “I was thankful to Professor Zaengle for providing his expertise and information we needed in acquiring grant approval. With the mitigation grant funds the Village was able to acquire the homes, which enabled the property owners to purchase another home. “

In June 2012, a severe storm rolled through Oliver which caused extensive flooding throughout the area and led to a federal disaster declaration. The same three properties purchased by mitigation funds experienced further slumping. By previously acquiring the three properties, additional losses were avoided.

For more information regarding the HMGP, visit www.fema.gov/hazard-mitigation-grant-program-hmgp.



Caption: The Schlais' garage foundation was victim to "slumping." Their rear of their home was dangerously close to failure.

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